

**Confirmatory Survey of Building T020'  
Concrete Blocks and Other Building Debris  
Santa Susana Field Laboratory  
Boeing - Rocketdyne  
Ventura County, California**

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**Introduction:**

The concrete blocks and materials resulted from the sectioning of the walls and floors of the Rockwell International Hot Laboratory (RIHL) during demolition of the building. At the time of demolition, these blocks (232 decontaminated structural concrete sections s/n 180 – 409, 438 – 440) were found to have radioactive contamination of several surfaces and subsequently decontaminated by Boeing-Rocketdyne. The purpose of this survey is to determine if the blocks may be released for unrestricted use as defined in DECON – 1 (Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use).

**Reference Document(s):**

1. Letter 98RC-3595; from James Barnes to Stephen Hsu; "Disposal of Rockwell International Hot Lab (RIHL) Wall Section Blocks and Other Debris", July 31, 1998.

**Survey Personnel:**

Roger Lupo and Xiao Song Yin on August 18, 1998

**Survey Instruments:**

Manufacture & Model	S/N	Probe/detector	S/N	Calibration due date
Ludlum Micro R m-19	62583	Internal NaI 1x1 scint.	NA	5/1/99
Ludlum model 3	134215	44 – 2 NaI 1x1 scint.	PR137117	11/25/98
Ludlum model 18	105775	44 – 9 G-M pancake	PR110029	11/25/98
Ludlum model 18	105775	43 – 90 100 cm <sup>2</sup> alpha scint.	PR106316	11/25/98
Eberline ESP - 2	00406	44 – 9 G-M Pancake	PR043314	12/3/98
Eberline ESP - 2	00406	44 – 10 NaI 2x2 scint.	PR038045	12/3/98

**Survey Report:**

The equipment listed in above was function checked and background measurements were taken, background measurements are listed in Table 1. A general survey with a NaI detector sensitive to gamma photons and a GM pancake (beta/gamma) of a selected number of the concrete blocks was performed by Radiologic Health Branch personal. Blocks were selected at random for direct measurements and swipe samples. The swipe samples were sent to the sanitation and radiation Laboratory (SRL) in Berkeley. The survey results are listed in Table 2 and SRL analysis results of the swipe sample are listed in Table 3.

**Table 1: Background Measurements**  
Measurements made at Building T487

Meter	Reading
Ludlum Micro R m-19 (Exposure)	7 to 12 $\mu$ R/hr
Ludlum model 3 w/ 44 – 2 1x1 NaI (Gamma)	2.5K to 3K cpm
Ludlum model 18 w/ 43 – 90 ZnS 100 cm <sup>2</sup> (Alpha)	0 cpm
Eberline ESP – 2 w/ 44 – 9 GM (Beta & Gamma)	20 to 60 cpm

Table 2: Field Data

Rocketdyne Building T020 concrete blocks							
Block Id	Survey Measurement			direct measurement			
	1x1 Nal cpm	Pancake GM cpm	Alpha cpm	Wipe id	alpha cpm	1x1 Nal cpm	Pancake GM cpm
66*	2.5K to 3.5K	60 to 100	0	6	1	2.1K	32.9
187	3K to 4K	60 to 100	0	2	0	2.5K	52.8
194	2.5K to 3K	20 to 60	0	1	0	2.5K	65.8
237	2.5K to 3K	60 to 100	*				
239	2.5K to 3K	60 to 100	*				
240	2.5K to 3K	60 to 100	*				
241	2.5K to 3K	60 to 100	*				
242	2.5K to 3K	60 to 100	*				
244	2.5K to 3K	60 to 100	*				
246	2.5K to 3K	60 to 100	*	14	0	2.5K	57.8
247	2.5K to 3K	60 to 100	*	15	0	2.6K	48.8
248	2.7K to 3.2K	60 to 100	*				
250	2.7K to 3.2K	60 to 100	*				
251	2.7K to 3.2K	60 to 100	*				
252	2.7K to 3.2K	60 to 100	*				
256	2.7K to 3.2K	60 to 100	*	16	0	2.8K	51.8
257	2.7K to 3.2K	60 to 100	*				
260	2.5K to 3.5K	60 to 100	0				
261	2.5K to 3.5K	60 to 100	0				
262	2.5K to 3.5K	60 to 100	0				
263	2.5K to 3.5K	60 to 100	0				
264	2.5K to 3.7K	60 to 100	0				
265	2.5K to 3.7K	60 to 100	0				
266	2.5K to 3.7K	60 to 100	0	12	0	3K	51.8
267	2.5K to 3.7K	60 to 100	0				
271	2.5K to 3.5K	60 to 100	0				
273	2.5K to 3.5K	60 to 100	*	13	0	3K	56.8
274	2.5K to 3.5K	60 to 100	*				
275	2.5K to 3.5K	60 to 100	*				
276	2.5K to 3.5K	60 to 100	*				
277	2.5K to 3.5K	60 to 100	*				
278	2.5K to 3.5K	60 to 100	*				
279	2.5K to 3.5K	60 to 100	*				
282	2.5K to 3.5K	60 to 100	0	11	0	2.6K	47.9
289	2.5K to 3.5K	60 to 100	0				
367	2.5K to 3K	60 to 100	0	9	0	2.8K	57.8
393	2.5K to 3K	60 to 100	0	10	0	2.5K	51.8
398	2.5K to 3.5K	60 to 100	0	3	0	2.8K	52.8
403	2.5K to 3.5K	60 to 100	0	8	0	2.5K	65.8
411	2.5K to 3.5K	60 to 100	0	7	1	2.5K	55.8
414	2.5K to 3.5K	60 to 100	0	5	0	2.7K	32.1
473	2.7K to 3.6K	60 to 100	0	4	0	2.5K	53.8

\* Block 66 was not on the list supplied by Rocketdyne but was in the storage location with the other blocks.

Table 3: Sanitation and Radiation Laboratory Results.

Block Id	Wipe ID	Laboratory Analysis	Results $\pm$ CE (pCi/100cm <sup>2</sup> )	Results $\pm$ CE (dpm/100cm <sup>2</sup> )
194	1	Gross alpha Gross Beta	0.18 $\pm$ 0.13 N.D.	0.40 $\pm$ 0.29 N.D.
187	2	Gross alpha Gross Beta	0.30 $\pm$ 0.16 N.D.	0.67 $\pm$ 0.36 N.D.
398	3	Gross alpha Gross Beta	0.36 $\pm$ 0.17 N.D.	0.80 $\pm$ 0.38 N.D.
473	4	Gross alpha Gross Beta	0.16 $\pm$ 0.13 N.D.	0.36 $\pm$ 0.29 N.D.
414	5	Gross alpha Gross Beta	0.23 $\pm$ 0.14 N.D.	0.51 $\pm$ 0.31 N.D.
66	6	Gross alpha Gross Beta	0.18 $\pm$ 0.13 N.D.	0.40 $\pm$ 0.29 N.D.
411	7	Gross alpha Gross Beta	0.21 $\pm$ 0.14 N.D.	0.47 $\pm$ 0.31 N.D.
403	8	Gross alpha Gross Beta	N.D. N.D.	N.D. N.D.
367	9	Gross alpha Gross Beta	0.25 $\pm$ 0.19 N.D.	0.56 $\pm$ 0.42 N.D.
393	10	Gross alpha Gross Beta	N.D. N.D.	N.D. N.D.
282	11	Gross alpha Gross Beta	N.D. N.D.	N.D. N.D.
266	12	Gross alpha Gross Beta	N.D. N.D.	N.D. N.D.
273	13	Gross alpha Gross Beta	N.D. N.D.	N.D. N.D.
246	14	Gross alpha Gross Beta	N.D. N.D.	N.D. N.D.
247	15	Gross alpha Gross Beta	N.D. N.D.	N.D. N.D.
256	16	Gross alpha Gross Beta	N.D. N.D.	N.D. N.D.

CE  $\rightarrow$  Counting error at the 95% confidence level.N.D.  $\rightarrow$  Not Detected**Summary:**

The survey results of the representative sample of concrete blocks were all at background levels. The results of the contact measurements and the laboratory analysis of collected samples indicate activity levels below the acceptable surface contamination levels listed in DECON-1 (Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use). I recommend the approval for release for unrestricted use the 232 concrete sections s/n 180-409, 438-440.

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